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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kenichi Makino

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EXAMINER

STOFFREGEN, JOEL

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/816,643	Applicant(s) MAKINO, KENICHI	
	Examiner Joel Stoffregen	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the original application filed on 04/02/2004 and preliminary amendment filed on 08/02/2004. Claims 1-5, 8-13, 16, and 17 were amended. Claims 1-17 are currently pending in this application. Claims 1, 9, and 17 are independent claims.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claim 17** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim recites a computer program product implementing a method. A program causing a computer to execute a method that is not tangibly embodied on a computer readable medium is non-statutory subject matter.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 1-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Tahara, Patent No: US 5,963,256 ("TAHARA"), in view of Johnston, Patent No: US 5,285,498 ("JOHNSTON").

8. Regarding **claim 1**, TAHARA teaches an encoding apparatus that encodes for compression a multi-channel signal including digital signals from a plurality of channels (see FIG. 6) by framing the multi-channel signal ("audio frame comprises a set of samples of about, for example, 20 to 30 msec", TAHARA, column 7, lines 13-14), and determining a number of steps of quantizing data in the frame ("the coder 606 quantizes the inputted audio data 200-1b in prescribed quantization steps", TAHARA, column 7, lines 14-16), the apparatus comprising:

provisional-number-of-in-use-bits calculating means for calculating a sum of code length in a current frame as a provisional number of in-use bits for each channel ("the coding amount calculator 607 adds up the coding amount for the coded data outputted from the coder 606 in audio frame units and outputs this as the degree of difficulty of coding", TAHARA, column 7, lines 17-20) based on a provisional number of quantizing steps provisionally determined for quantizing the digital signals ("the coder 606

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quantizes the inputted audio data 200-1b in prescribed quantization steps", TAHARA, column 7, lines 14-16);

inter-channel bit allocation means ("coding rate allocator 506", TAHARA, column 7, line 45) for allocating a number of bits usable for each channel based on a ratio of the provisional number of in-use bits for each channel with a total, provisional number of in-use bits, which is a sum of the provisional numbers of the in-use bits for all the plurality of channels (see TAHARA, column 7, equation [1], and TAHARA, column 8, lines 1-8); and

number-of-bits adjusting means for adjusting the number of in-use bits based on the number of usable bits allocated to each channel ("audio coders 306A-1 to 306A-n code data ... based on coding rate information supplied by the coding rate allocator 506", TAHARA, column 8, lines 18-22).

However TAHARA does not specifically disclose that entropy coding is performed on the digital signals.

In the same field of digital signal coding, JOHNSTON teaches that entropy coding is performed on the digital signals (see JOHNSTON, FIG. 7, Huffman coding is performed on quantized data).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to perform the coding method of JOHNSTON on the multiple channels of TAHARA in order to reduce the channel bit rate requirements (see JOHNSTON, column 3, lines 52-54)

9. Regarding **claim 2**, TAHARA further teaches:

the plurality of channels includes a plurality of group channels each including two or more channels (see TAHARA, FIG. 6, video data 200-1a and audio data 200-1b are grouped into program data 200-1);

the provisional-number-of-in-use-bits calculating means calculates the provisional number of in-use bits in each group channel ("coded volume calculator 602 adds up the coded amounts of data outputted from the coder 601 and outputs this as the degree of difficulty of coding", TAHARA, column 6, lines 42-44, see also TAHARA, column 7, lines 17-20); and

the inter-channel bit allocation means ("coding rate allocator 506", TAHARA, column 7, line 45) allocates the number of bits usable for each group channel based on a ratio of the provisional number of in-use bits for each group channel with the total provisional number of in-use bits, which is a sum of the provisional numbers of in-use bits for each group channel (see TAHARA, column 7, equation [1], and TAHARA, column 8, lines 1-8).

10. Regarding **claim 3**, JOHNSTON further teaches that the provisional-number-of-in-use-bits calculating means transforms a time-axis signal into a frequency-axis signal (see JOHNSTON, FIG. 7, MDCT is performed on the input signal), quantizes the frequency-axis signal (see JOHNSTON, FIG. 7, iterative quantization is performed on the transformed signal), and performs entropy coding of the quantized signal (see JOHNSTON, FIG. 7, Huffman coding is performed on quantized data).

11. Regarding **claim 4**, JOHNSTON further teaches that the provisional-number-of-in-use-bits calculating means divides data in the current frame into units of coding (see JOHNSTON, FIG. 7, the data is transformed into coefficients and scale factors) and determines the provisional number of quantizing steps based on a scale factor for normalization of the data included in the units of coding ("quantization process affects both spectral coefficients and scale factors", JOHNSTON, column 21, lines 67-68).

12. Regarding **claim 5**, TAHARA further teaches that the inter-channel bit allocation means allocates a part of a total number of allocable bits as the number of usable bits corresponding to the ratio of the provisional number of in-use bits for each channel with the total provisional number of in-use bits for all the channels (see TAHARA, column 7, equation [1], and TAHARA, column 8, lines 1-8).

13. Regarding **claim 6**, TAHARA further teaches that the inter-channel bit allocation means allocates other than the part of the total number of allocable bits evenly for each channel (see TAHARA, column 7, equation [1], and TAHARA, column 8, lines 1-8).

14. Regarding **claim 7**, TAHARA further teaches that the inter-channel bit allocation means makes a proportional allocation of other than the part of the total number of allocable bits for each channel correspondingly to a code length in which each digital

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signal is encoded without being compressed (see TAHARA, column 7, equation [1], and TAHARA, column 8, lines 1-8).

15. Regarding **claim 8**, TAHARA further teaches that the digital signals are digital audio signals ("audio data 200-1b to 200-nb", TAHARA, column 6, lines 47-48).

16. Regarding **claim 9**, the rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

17. Regarding **claim 10**, the rejection is based on the same reason described for claim 2, because the claim recites the same or similar limitation(s) as claim 2.

18. Regarding **claim 11**, the rejection is based on the same reason described for claim 3, because the claim recites the same or similar limitation(s) as claim 3.

19. Regarding **claim 12**, the rejection is based on the same reason described for claim 4, because the claim recites the same or similar limitation(s) as claim 4.

20. Regarding **claim 13**, the rejection is based on the same reason described for claim 5, because the claim recites the same or similar limitation(s) as claim 5.

21. Regarding **claim 14**, the rejection is based on the same reason described for claim 6, because the claim recites the same or similar limitation(s) as claim 6.

22. Regarding **claim 15**, the rejection is based on the same reason described for claim 7, because the claim recites the same or similar limitation(s) as claim 7.

23. Regarding **claim 16**, the rejection is based on the same reason described for claim 8, because the claim recites the same or similar limitation(s) as claim 8.

24. Regarding **claim 17**, the rejection is based on the same reason described for claim 1, because the claim recites the same or similar limitation(s) as claim 1.

Conclusion

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. A list of the pertinent prior art can be found on the included form PTO-892 Notice of References Cited.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joel Stoffregen whose telephone number is (571) 270-1454. The examiner can normally be reached on Monday - Friday, 9:00 a.m. - 6:30 p.m..

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard can be reached on (571) 272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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